DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-012996
Date Inspected: 13-Apr-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 1000
OSM Departure Time: 1830
Location: Clackamas, OR

CWI Name: M. Gregson, J. Salazar, G. Mundt

CWI Present:	☑ Yes	☐ No					
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

Hinge-K Pipe Beam Assembly 120A-2:
The QA Inspector witnessed WID #F17 (Igor Frolov), in-process of performing Flux Core Arc Welding (FCAW) on the completed stainless steel overlay. WID #F17 explained to the QA Inspector that he was currently performing repairs on low spots, underfill and on the weld start/stops. The QA Inspector noted that QC Inspector Jose' Salazar was present and QC Inspector Salazar explained that the welding parameters were previously recorded at 160 amps/ 24.6 volts and the approved Welding Procedure Specification (WPS) 3293, was being utilized, for the repairs. QC Inspector Salazar explained that pre-heat was consistently maintained, utilizing a stationary torch, which was previously set-up. The QA Inspector randomly recorded pre-heat of approximately 150 degrees Fahrenheit, during the in-process FCAW performed by WID #F17.The QA Inspector noted that the FCAW appeared to be in compliance with WPS 3293 and after these repairs are complete, this Fuse will eventually be sent to AG Machine Works, for final machining. See attached picture below.

Hinge-K Pipe Beam Assembly 101A-2:
The QA Inspector witnessed production Lead Troy Smith and WID #B62 (Marcus Belgarde), performing the backgouge, on the previously completed root pass, designated as weld joint (WJ) # WM4-1. The QA Inspector noted that this weld joint was the 120A-1 Fuse to 102A-1 Forging and was designated as an AWS D1.5 B-U7-S

Complete Joint Penetration (CJP), double U Groove, with a20 degree included angle bevel prep. The QA Inspector noted that Lead Troy Smith was performing the backgouge, utilizing the Carbon Arc process and that pre-heat was intermittently applied, with a stationary torch. The QA Inspector noted that QC Inspector Jose´ Salazar was present and QC Inspector Salazar explained that the pre-heat was verified, prior to starting the Carbon Arcing. The QA Inspector noted that the minimum temperature required is 150 degrees Fahrenheit, per AWS D1.5. QC Inspector Salazar explained that the Carbon Arcing will continue and then mechanical grinding will then be performed, to grind the root pass to sound, clean metal. QC Inspector Salazar explained that the backgouging will continue to depth of approximately 65 mm and he will then verify the depth and perform 100% Visual and Magnetic Particle Testing (VT/MT) on the backgouge.
The QA Inspector was present on this swing shift and witnessed W1D #V7 (Vincent Vue) continuing to perform the backgouging. The QA Inspector noted that WID #V7 was utilizing a mechanical grinder to perform the backgouge and WID #V7 explained that the backouge will probably continue the entire shift.

Hinge-K Pipe Beam Assembly 102A-3:
The QA Inspector witnessed OIW QC Inspector Jose' Salazar performing Magnetic Particle Testing (MT) on the completed Mill to Bear (MTB), HPS 485W stiffeners. The QA Inspector noted that the stiffeners had been previously machined to tolerance and the assembly had been placed on the Bay 3 shop floor. QC Inspector Salazar explained that he was performing the testing on the stiffener ends, in accordance to OIW procedure QC -113 Rev. #3 and at this time of testing, no rejectable indications were found. QC Inspector Salazar explained that the testing will continue, during the shift and he will probably resume the testing on the following day. See attached picture below.

Material, Equipment, and Labor Tracking (MELT)
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 4 OIW production personnel and 1 QC Inspector.
The QA Inspector noted that the following personell were present at AG Machine Works: 1 AG Machinist and 1 AG Supervisor.

Summary of Conversations:
On this date, the QA Inspector reviewed a copy of the FARO testing report for the Fuse 120A-6, which was provided by OIW Project Manager Bill Pender. After reviewing the testing report, the QA Inspector noted that OIW Machinist Matt Ackerson had previously arrived at AG Machine Works on 4/09/10, to perform the final outside diameter and cylindrical measurements on the Fuse, after final machining. Per the testing report, the QA Inspector noted that Matt Ackerson had recorded the final outside diameter of the Fuse at 1920.6537 mm and Cylindrical deviation recorded at .4143 mm. Per the testing report, the report showed a tolerance of +/- 2mm for the outside diameter and 2 mm tolerance for the cylindricity. The QA Inspector noted that the contract states "The area shall be machined finished to within 1 mm of the 960 theoretical radius" and "The cylinder defined by the machined stainless steel surface shall be straight and concentric to the pipe beam axis within 1 mm". Per the testing report, the QA Inspector noted that these measurements and tolerances, appear to be in compliance with the contract requirements.

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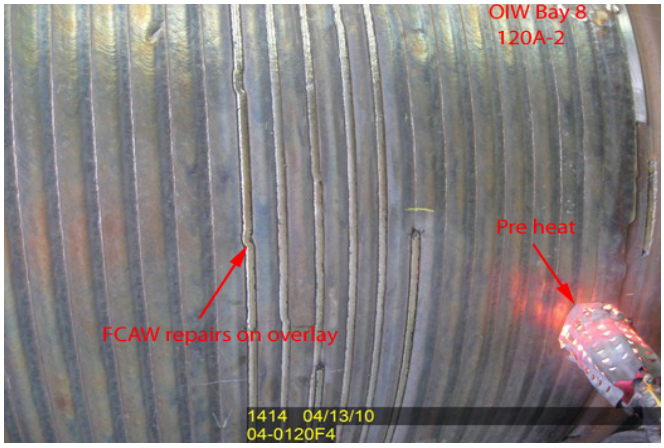

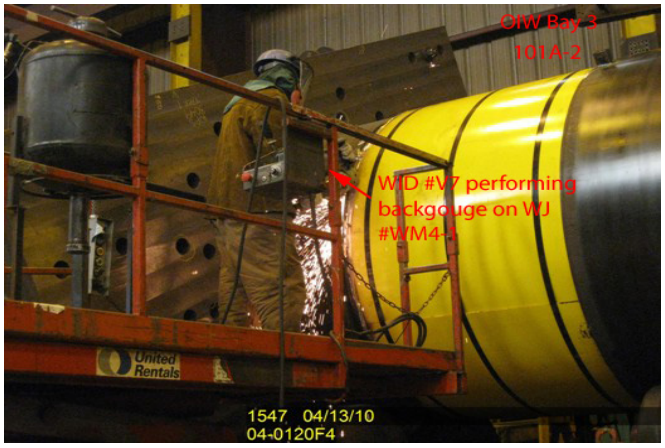

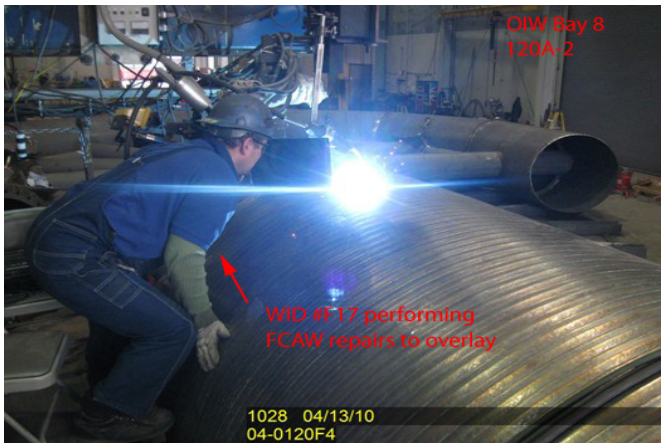

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer